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HOUSEKEEPERS' CHAT

Wednesday, February 20, 1935.

(FOR BROADCAST USE ONLY)

Subject: "WHEN YOU COOK SUGAR" Information from the Bureau of Home Economics, U.S.D.A.

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Sugar is a food that has ways of its own--and they are ways every good cook understands. All fruits and some vegetables contain sugar, and so does milk, not to mention the countless foods and "made dishes" that are sweetened by adding sugar. the fruits that are canned or preserved in sugar sirup, and the candies and confections that are made of sugar.

Loose white granulated sugar, cube or tablet sugar, and powdered sugar are the commonest forms on the market. These are all refined sugar -- so highly refined, in fact, that their only flavor is sweetness, and their only food value is their calories, or energy value. There is also brown sugar of different grades, some light, some dark.

White sugar is made from both sugar cane and sugar beets. It is exactly the same substance chemically, whichever the source, and behaves the same way in cooking. Experts who have tried to distinguish jellies and cakes made with cane sugar and with beet sugar were unable to do so.

Brown sugar is partially refined cane sugar. The different grades used to be sold as A, B, C, and D sugar, running from light cream color to very dark, moist brown, and varying in richness of flavor according to depth of color. Nowadays it comes as light brown and dark brown sugar, in grades known to the dealer as Nos. 8 to 15.

There is no brown sugar made from beets, for the beet sugar made by present processes is good only when refined.

The chemical name for cane sugar and beet sugar is sucrose. It is a carbohydrate, but it behaves differently from that other well known carbohydrate -- starch. For one thing, sucrose dissolves in cold water (as starch does not), and still more easily in hot water. You make use of this fact in cleaning sticky pans and dishes, and also, the other way round, when you make sugar sirup. As white sugar has no flavor except its sweetness, the sirup is just a sweet liquid -- a solution of sugar and water, thickened by cooking.

But this sugar sirup is very useful in cooking, canning, and preserving fruit. If you cook fruit in water it goes to pieces and you get a sauce. But if you drop it into hot sirup, it takes up some of the dissolved sugar and the flesh stiffens enough to hold together while cooking in the sirup -- which, of course, is thicker than water. You cook fruit this way for today's dinner, or for canning. Or you cook it longer, in a thicker sirup, to make preserves.

As for sugar flavor, you can develop it by melting the sugar. This you do by heating dry sugar until it turns into the clear liquid which is called "barley sugar." Heat this "barley sugar" a little more and it will caramelize slightly, with a new flavor and color of its own. Cool this liquid and it becomes very brittle -- as when you make peanut brittle and other brittle candies. Or you can dissolve your melted sugar and make caramel sauce. When you bake a cake, or other sweet food, some caramelization takes place on the surface and makes the cake brown more quickly than it would otherwise -- though some of the browning, of course, is due to the starch in the flour with which the cake is made.

When you cook sugar (sucrose) with fruit or any other acid -- cream of tartar, for example -- you produce "invert sugar." The chemical action which takes place breaks up the sucrose into two other sugars, dextrose and levulose. Dextrose has other names. It is sometimes called glucose, and sometimes grape sugar because it is found in grapes. Levulose is also called fructose or fruit sugar.

Ordinary sugar when cooked crystallizes unless you prevent it. Invert sugar does not crystallize readily. Therefore, when you do not want candy to crystallize, or "go to sugar", you add acid (vinegar or cream of tartar), and produce enough invert sugar to do the trick. Or you can add corn sirup.

The sirups have their uses in cookery as well as on the table with hot breads and pancakes. You make ginger bread, brown bread, puddings, and spiced cakes with molasses or sorghum.You flavor sauces and candies with maple sirup. You use corn sirup to keep your candies and frosting from "going to sugar." From the standpoint of their behavior in cooking, one difference between the sirups is the amount of acid they contain. Molasses and sorghum sirup contain the most, and it is because of this acid that you use soda for leavening your gingerbread, cakes, or puddings that are made with these sirups.

As to table sirups, the many varieties on the market make it worth while to know just what is what among these products. Cane sirup, sorghum sirup and maple sirup, properly so called, are not made from sugar as such but are the concentrated juice of the sugar cane, sorghum and sap of the sugar maple tree, before any sugar is taken out. The law prohibits the use of these names in labels on sirup made from the sugar instead of the juice.

Molasses is the "mother liquor" left from the cane juice after the raw sugar has been taken out. In the refinery, another crystallization leaves a liquor which is sold as "refiners' sirup," thinner and less sweet than molasses.

Corn sirup is a part of many of the table sirups you buy. It is manufactured from corn starch, largely turned to sugars (dextrose, or glucose, and maltose) which are not very sweet. It is usually flavored with "refiners' sirups" or maple sirup, or perhaps cane or maple sugar.

Honey, a natural sirup, is composed chiefly of levulose and dextrose (glucose), the two sugars that can be derived from sucrose. Levulose is much sweeter than the others, and this accounts for the sweetness of honey.

Molasses, sorghum and cane sirup supply the most food value beside sugar. They are especially good sources of iron. Sugar has energy value only. Most candy and confection has little else. So remember that concentrated sweetness cloys the appetite. Too much of it may keep you from eating the other kinds of foods you need to make up a balanced diet.

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